ANTIBIOTIC ADJUNCTS TO PERIO DONTAL TREATMENT

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PERIODONTITIS

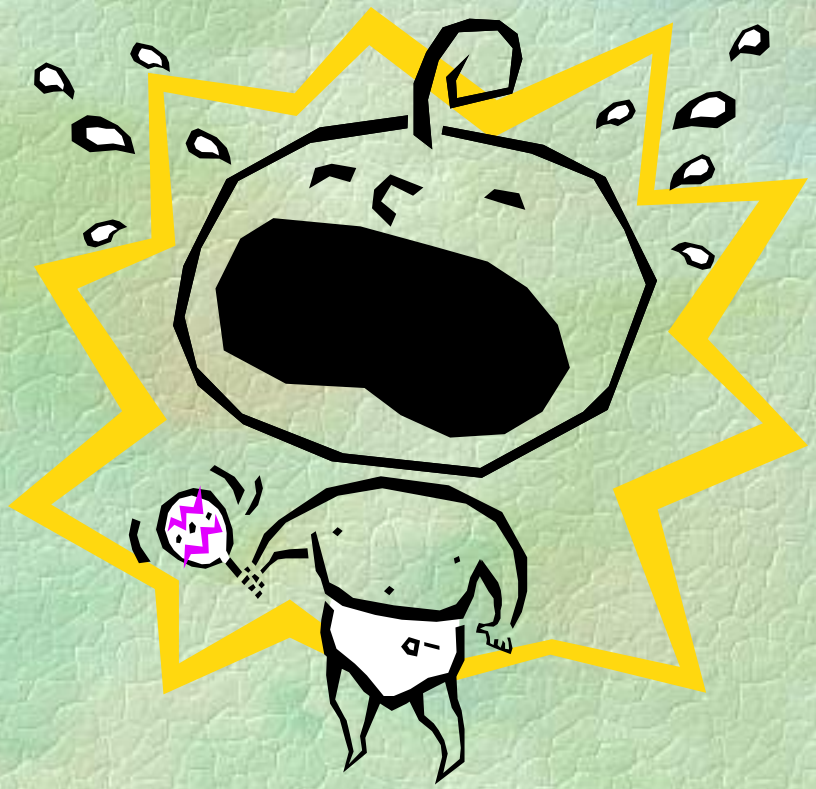
- IS A COMPLEX DISEASE THAT INVOLVES THE LOSS OF ATTACHMENT AROUND TEETH RESULTING FROM ACTIONS OF MICROORGANISMS AND THE RESPONSE OF THE HOST TO THESE ORGANISMS.

- Dental Clinics of North America Vol 42; Number 2; April 1998: 245-261.

PERIODONTITIS

- THE MOST EFFECTIVE TREATMENT CURRENTLY REQUIRES MECHANICAL ROOT PREPARATION IN THE PRESENCE OR ABSENCE OF SURGICAL REVISION OF THE PERIODONTIUM.

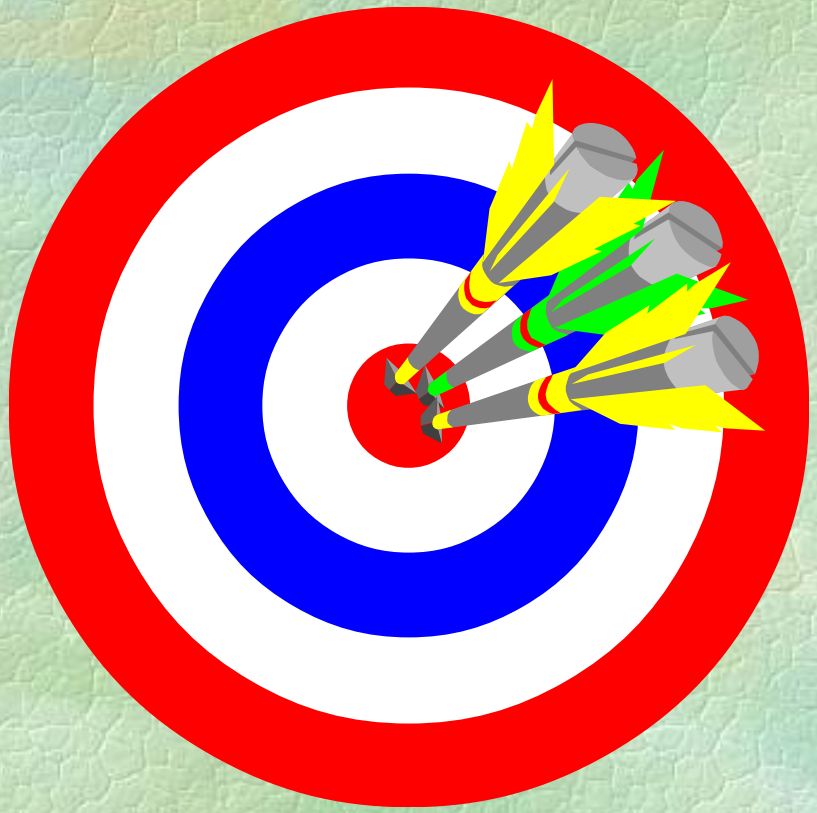
PERIODONTITIS



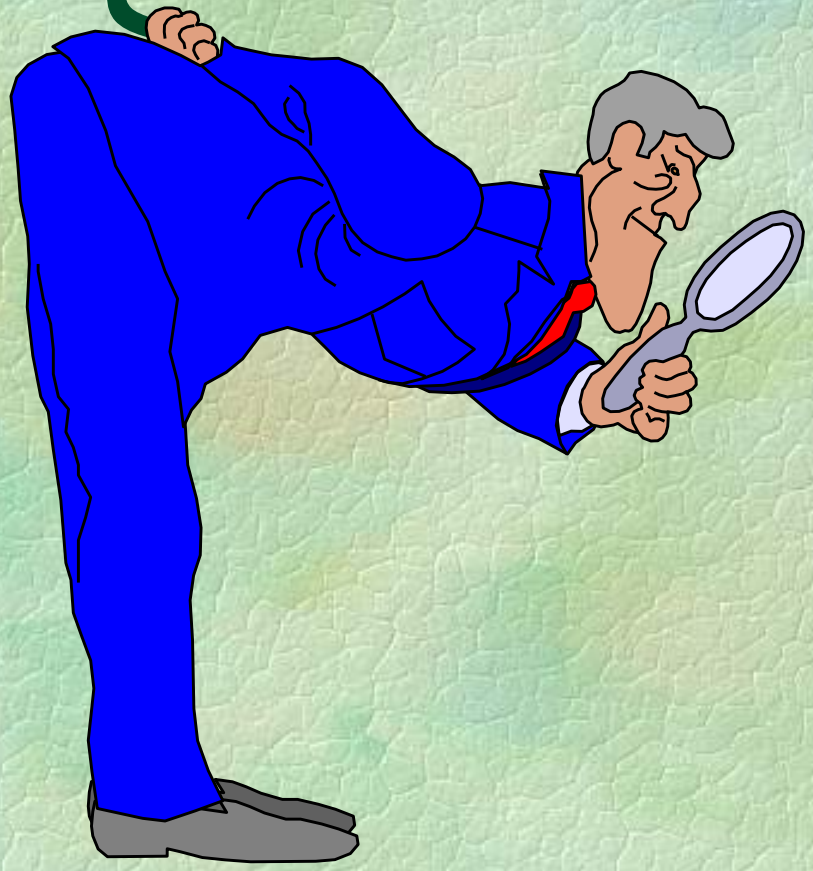
- TREATMENT CAN BE TIME CONSUMING, EXPENSIVE AND FRIGHTENING TO PATIENTS.

PERIODONTITIS

- THE SEARCH FOR A MAGIC BULLET IS A HIGH PRIORITY



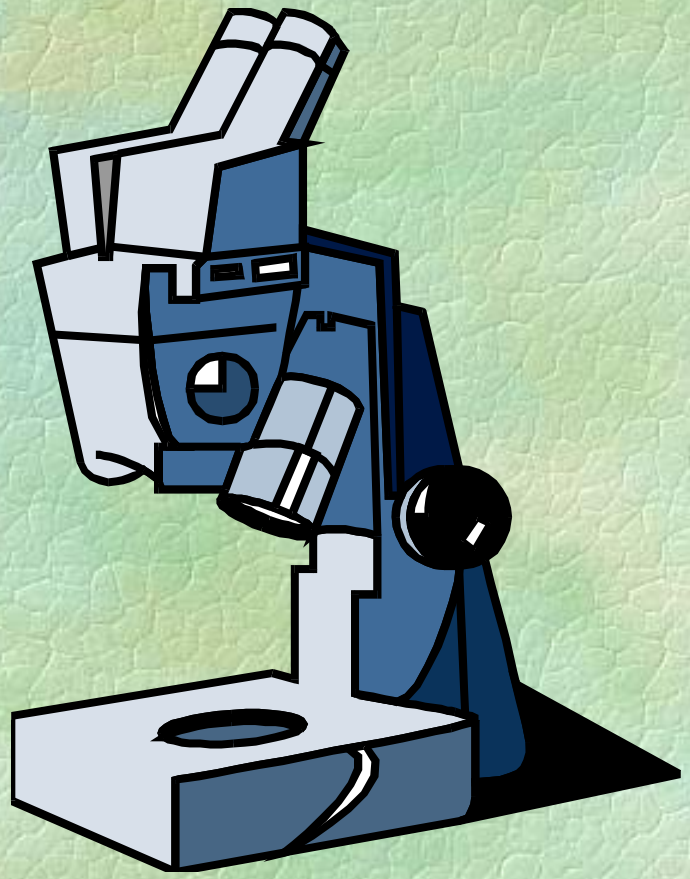
PERIODONTITIS



- A.a.
- P. gingivalis
- T. denticola
- B. forsythus
- P. intermedia
- E. nodatum
- Spirochetes

PERIODONTAL PATHOGENS

- GRAM-NEGATIVE ANAEROBIC RODS
- GRAM-POSITIVE FACULTATIVE AND ANAEROBIC COCCI AND RODS
- GRAM-NEGATIVE FACULTATIVE RODS



PERIODONTAL PATHOGENS

- TOTAL BACTERIAL LOAD
- BINDING OF THE DRUG TO TISSUES
- BIOINACTIVATION OF THE DRUG BY NONTARGET ORGANISMS
- BIOFILM PRESENCE AFFORDING THE PATHOGEN PROTECTION
- DRUG RESISTANT PATHOGENS
- IMPAIRED HOST RESISTANCE
- RECOLONIZATION FROM SUPRAGINGIVAL SITES AFTER TERMINATION OF ANTIMICROBIAL THERAPY

ANTIBIOTICS

- PENICILLIN
- MACROLIDES
- TETRACYCLINE
- CLINDAMYCIN
- CIPROFLOXACIN
- METRONIDAZOLE

PENICILLINS

- INHIBIT BACTERIAL WALL SYNTHESIS
- INDICATED IN ACUTE INFECTIONS FROM GRAM-POSITIVE BACTERIA
- RESISTANT ORGANISMS
- AMOXICILLIN MORE EFFECTIVE
- CAN BE COMBINED WITH CLAVULINIC ACID WHICH PROTECTS AMOXICILLIN FROM DEGRADATION
- NOT EFFECTIVE AGAINST Aa

PENICILLINS

- CLINICALLY ADMINISTRATION DECREASED PLAQUE BUT PATIENTS DEVELOPED ABSCESSES DURING THE STUDY WHICH WORSENED THE CLINICAL PARAMETERS
- NO SIGNIFICANT OR LASTING EFFECT WAS SEEN
- Heluvo et al., Effects of penicillin and erythromycin on the clinical parameters of the periodontium. Jperio 1989;60:467-472

MACROGLIDES

- CLINICALLY ADMINISTRATION DECREASED PLAQUE BUT PATIENTS DEVELOPED ABSCESSES DURING THE STUDY WHICH WORSENED THE CLINICAL PARAMETERS
- NO SIGNIFICANT OR LASTING EFFECT WAS SEEN
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MACROGLIDES

- ERYTHROMYCIN
- CONTAINS A LACTONE RING TO WHICH SUGARS ARE ATTACHED WHICH BIND TO BACTERIAL RIBOSOMES AND DISRUPT PROTEIN SYNTHESIS
- BACTERIOSTATIC
- LIMITED ACTIVITY AGAINST PERIODONTAL PATHOGENS
- LIMITED USE IN PERIODONTAL TREATMENT

TETRACYCLINES

- MOST COMMONLY PRESCRIBED ANTIMICROBIALS IN PERIODONTICS
- INHIBIT PROTEIN SYNTHESIS BY BINDING TO BACTERIAL RIBOSOMAL UNITS
- BROAD SPECTRUM
- INCLUDES TETRACYCLINE, DOXYCYCLINE,AND MINOCYCLINE
- MORE EFFECTIVE AGAINST GRAM POSITIVE
- GOOD ACTIVITY AGAINST SPIROCHETES, ANAEROBIC AND FACULTATIVE BACTERIA
- HIGH CONCENTRATIONS IN CREVICULAR FLUID

TETRACYCLINES

- CLINICAL USE IN ADULT PERIODONTITIS FOUND TETRACYCLINE TO BE NO DIFFERENT THAN PLACEBO RELATIVE TO CHANGES IN PROBING DEPTHS, ATTACHMENT LEVELS AND PERCENT SPIROCHETES.
- AL Joburi et al., Effects of adjunctive treatment of periodontitis with tetracycline and spiramycin. Jperio 1989;60:533-539.

TETRACYCLINES

- HAVE BEEN WIDELY USED IN TREATMENT OF BOTH GENERALIZED AND LOCALIZED JUVENILE PERIODONTITIS

- Mandell, RL. et al., Microbiological and clinical effects of surgery plus doxycycline on juvenile periodontitis. Jperio 1988;59:373-379

TETRACYCLINES

- RELATIONSHIPS WERE FOUND BETWEEN THE DECREASE OF Aa IN THE POCKET AND AN INCREASE IN PROBING ATTACHMENT LEVELS.

- Van Winkelhoff,A.et al, Micobiology in diagnosis and treatment planning in periodontics. Paradontol Implantol 1994;13:439-450

TETRACYCLINES

- CLINICAL USE IN REFRACTORY PERIODONTITIS WAS BENEFICIAL BY SIGNIFICANTLY REDUCING SPIROCHETES, MOTILE RODS,PROBING DEPTHS AND SUPPURATION.
- Lundstrom A. et al., Effect of combined systemic antimicrobial therapy and mechanical plaque control in patients with recurrent periodontal disease. Jclin Perio 1984;11:321-330.

DOXYCYCLINE

- A SIMILAR EFFICACY AND SPECTRUM OF ACTIVITY AS TETRACYCLINE
- ELEVATED IN GINGIVAL CREVICULAR FLUID AT LEVELS COMPARABLE TO TETRACYCLINE
- ABSORPTION OF DOXYCYCLINE IS LESS SENSITIVE TO THE PRESENCE OF FOOD

CLINDAMYCIN

- EFFECTIVE AGAINST GRAM-POSTITIVE AND MOST ANAEROBIC BACTERIA
- INHIBITS BACTERIAL PROTEIN SYNTHESIS BY BINDING TO BACTERIAL RIBOSOMES
- USE OF CLINDAMYCIN IN THE TREATMENT OF PERIODONTAL DISEASE HAS BEEN LIMITED BECAUSE OF POTENTIALLY SEVERE SIDE EFFECTS, SUCH AS ABDOMINAL DISCOMFORT, DIARRHEA, AND PSEUDOMEMBRANOUS COLITIS

CLINDAMYCIN

- THE AUTHORS CONCLUDED THAT CLINDAMYCIN WAS EFFECTIVE IN CONTROLLING THE RATE OF ATTACHMENT LOSS IN REFRACTORY PERIODONTITIS PATIENTS

- Gordon J, et al. Efficacy of clindamycin hychloride in refractory periodontitis. 12 month results. J Periodontal 1985;56:75-80.

CIPROFLOXACIN

- A BROAD-SPECTRUM ANTIMICROBIAL THAT INHIBITS BACTERIAL DNA SYNTHESIS THROUGH ITS BINDING TO DNA GYRASE, AN ENZYME RESPONSIBLE FOR THE UNWINDING AND SUPERCOILING OF DNA.
- EFFECTIVE AGAINST GRAM-NEGATIVE BACTERIA, STAPHYLOCOCCI, AND PSEUDOMONAS AERUGINOSA.
- MAY PROMOTE THE REPOPULATION OF THE PERIODONTIUM WITH BENEFICIAL MICROFLORA BY VIRTUE OF ITS SELECTIVITY.

CIPROFLOXACIN

- IT HAS A MINIMAL EFFECT ON STREPTOCOCCAL MICROBES
- CIPROFLOXACIN THERAPY MAY FACILITATE THE REPOPULATION OF THE POCKET WITH MICROFLORA MORE ASSOCIATED WITH PERIODONTAL HEALTH

- Slots J. et al., In vitro antimicrobial sensitivity of enteric rods and pseudomonads from advanced adult periodontitis. Oral Miccrobiol Immunol 1990;5:298-301.

METRONIDAZOLE

- A BROAD- SPECTRUM ANTIMICROBIAL, DISPLAYING ACTIVITY AGAINST ANAEROBIC COCCI, GRAM-NEATIVE BACILLI, AND GRAM-POSITIVE BACILLI
- PERMEABLE THROUGH THE BACTERIAL CELL WALL, THE DRUG BINDS DNA AND DISRUPTS THE HELICAL STRUCTURE. BREAKAGE OF THE DNA STRANDS FOLLOWS LEADING TO CELL DEATH.
- LEVELS OF THE DRUG IN CREVICULAR FLUID CAN APPROACH TWICE THAT IN THE SERUM.

METRONIDAZOLE

- THE EFFECT OF THE METRONIDAZOLE WAS MAINTAINED FOR A TWO TO THREE YEAR RE-CALL PERIOD. IT CAN SIGNIFICANTLY REDUCE THE NEED FOR PERIODONTAL SURGERY COMPARED TO DEBRIDEMENT ALONE.

- Loesche WH, et al., Effects of metronidazole on periodontal treatment needs. J Periodontol 1991; 62:247-257.

METRONIDAZOLE

- SHOWED COMPLETE ELIMINATION OF Aa IN NINE JUVENILE PERIODONTITIS SUBJECTS SIX OF WHOM LATER HAD SURGERY TO CORRECT RESIDUAL DEFFECTS.

- Saxen L, et al., In the treatment of localized juvenile periodontitis. J Clin Periodontal 1993;20:166-171.

METRONIDAZOLE

- REFRACTORY PERIODONTITIS WITH OR WITH OUT OTHER ANTIBIOTIC COMBINATIONS HAS BEEN SUCCESSFULLY TREATED FOR UP TO TWO YEARS FOLLOWING PERIODONTAL DEBRIDEMENT PLUS METRONIDAZOLE

- van Winkelfoff AJ, et al., Microbiology in the management of destructive periodontal disease.J Clin Periodontol 1991;18:411-420.

LOCAL DELIVERY OF ANTIBIOTICS

- RECURRENT POCKETS IN THE PERIODONTAL MAINTENANCE PATIENT
- THE AILING OR FAILING IMPLANT
- PERIODONTAL ABSCESSES

LOCAL DELIVERY OF ANTIBIOTICS

- TETRACYCLINE FIBER (ACTISITE)
- DOXYCYCLINE POLYMER (ATRIDOX)
- MINOCYCLINE OINTMENT (PERIOCLINE)

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ACTISITE

- DELIVERY SYSTEM CONSISTS OF A POLYMER, ETHYLENE VINYL ACETATE, 25% SATURATED TETRACYCLINE HYDROCHLORIDE
- CONTAINS 12.7 MG OF TETRACYCLINE HYDOCHLORIDE
- THE FIBER RELEASES TETRACYCLINE AT A CONSTANT RATE FOR 14 DAYS
- A CONCENTRATION MORE THAN 150 TIMES THAT ACHIEVED BY SYSTEMIC TETRACYCLINE
- BACTERICIDAL CONCENTRATION OF TETRACYCLINE
- FEWER SIDE EFFECTS
- BEST WHEN USED IN COMBINATION WITH SCALING AND ROOT PLANING

ATRIDOX

- A LIQUID BIODEGRADABLE DRUG DELIVERY SYSTEM THAT HARDENS IN THE PERIODONTAL POCKET AND GIVES A CONTROLLED RELEASE OF THE INCORPORATED AGENT
- ADMINISTERED VIA SYRINGE
- STUDIES IN PROGRESS UTILIZING THIS MATERIAL IN CONJUNCTION WITH ROOT PLANING AND SCALING
- NOT FDA APPROVED

PERIOCLINE

- MANUFACTURED IN JAPAN
- APPLIED INTO THE POCKET WITH A SYRINGE AND BLUNT CANNULA
- REDUCTION IN PROBING POCKET DEPTH IN SITES TREATED WITH SCALING AND ROOT PLANING